



**SEW**  
**EURODRIVE**

# Operating Instructions



**MOVITRAC<sup>®</sup> LTE-B / LTP**  
Accessories





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## Important Notes

How to use the operating instructions

## 1 Important Notes



### 1.1 How to use the operating instructions







The operating instructions are an integral part of the product and contain important information on operation and service. The operating instructions are written for all employees who assemble, install, startup, and service this product.

The operating instructions must be accessible and legible. Make sure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the operating instructions carefully and understood them. Consult SEW-EURODRIVE if you have any questions or if you require further information.

### 1.2 Structure of the safety notes

The safety notes in these operating instructions are structured as follows:

Symbol	 <b>SIGNAL WORD</b>
	Nature and source of danger. Possible consequence(s) if the safety notes are disregarded. <ul style="list-style-type: none"> <li>• Measure(s) to prevent the danger.</li> </ul>

Symbol	Signal Word	Meaning	Consequences if disregarded
Example:	 <b>DANGER</b>	Imminent danger	Severe or fatal injuries
 General hazard	 <b>WARNING</b>	Possible dangerous situation	Severe or fatal injuries
 Specific hazard, e.g. electric shock	 <b>CAUTION</b>	Possible dangerous situation	Minor injuries
	<b>NOTICE</b>	Possible damage to property	Damage to the drive system or its environment
	<b>TIP</b>	Useful information or tip. Simplifies the handling of the drive system.	



Unless the information in the operating instructions is adhered to, it will be impossible to ensure:

- Trouble-free operation
- Fulfilment of any rights to claim under guarantee

**Consequently, read the operating instructions before you start working with the product!**

### **1.3 Right to claim under limited warranty**

Adhering to the operating instructions is a prerequisite for fault-free operation and the fulfillment of any right to claim under warranty. Read the operating instructions before you start working with the unit.

Make sure that the operating instructions are available to persons responsible for the system and its operation as well as to persons who work independently on the unit. You must also ensure that the documentation is legible.

### **1.4 Exclusion of liability**

You must comply with the information contained in these operating instructions to ensure safe operation of the MOVITRAC® LT and to achieve the specified product characteristics and performance requirements. SEW-EURODRIVE does not assume liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

### **1.5 Copyright notice**

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Any reproduction, modification, distribution or unintended use, in whole or in part, is prohibited.

**1.6 Waste disposal**

Please dispose of the following parts in accordance with the current regulations:

- Electronics scrap (printed-circuit boards)
- Plastic (housing)
- Sheet metal
- Copper



## 2 Safety Notes

The following basic safety notes must be read carefully to prevent injury to persons and damage to property. The operator must ensure that the basic safety notes are read and observed. Make sure that persons responsible for the plant and its operation, as well as persons who work independently on the unit, have read through the operating instructions carefully and understood them.

If you are unclear about any of the information in this documentation, or if you require further information, please contact SEW-EURODRIVE.

### 2.1 Preliminary information

The following safety notes predominantly refer to the use of frequency inverters and their accessories. Additionally, when using drives with motors or gearmotors, observe the corresponding safety notes in the respective operating instructions.

Please also observe the supplementary safety notes in the individual sections of this document.

### 2.2 General

	<b>⚠ DANGER</b>
	<p>During operation, frequency inverters and their accessories can have live, bare parts according to their degree of protection.</p> <p>Severe or fatal injuries.</p> <ul style="list-style-type: none"> <li>• All work related to transportation, storage, setup/mounting, connection, startup, maintenance and repair may only be carried out by qualified personnel, in strict observation of: <ul style="list-style-type: none"> <li>– The relevant detailed operating instructions</li> <li>– The warning and safety signs on the motor/gearmotor and electronic components</li> <li>– All other project planning documents, operating instructions and wiring diagrams related to the drive</li> <li>– The specific regulations and requirements for the system</li> <li>– The national/regional regulations governing safety and the prevention of accidents</li> </ul> </li> <li>• Never install damaged products.</li> <li>• Immediately report any damages to the shipping company.</li> </ul>

Removing covers without authorization, improper use as well as incorrect installation or operation may result in severe injuries to persons or damage to property.



### 2.3 Target group

Any mechanical work may only be performed by adequately qualified personnel. Qualified personnel in this context are persons who are familiar with the setup, mechanical installation, trouble shooting and maintenance for this product. Further, they are qualified as follows:

- Training in mechanical engineering, e.g. as a mechanic or mechatronics technician (final examinations must have been passed).
- They are familiar with these operating instructions.

Any electronic work may only be performed by adequately qualified electricians. Qualified electricians in this context are persons who are familiar with the electronic installation, startup, trouble shooting and maintenance for this product. Further, they are qualified as follows:

- Training in electrical engineering, e.g. as an electrician or mechatronics technician (final examinations must have been passed).
- They are familiar with these operating instructions.

All work in further areas of transportation, storage, operation and waste disposal may be carried out only by persons who are trained appropriately.

### 2.4 Designated use

Frequency inverters and their accessories are components for controlling asynchronous AC motors. Frequency inverters are components intended for installation in electrical systems or machines. Never connect capacitive loads. Operation with capacitive loads results in over voltages and may destroy the unit.

The following standards apply, if the frequency inverters are marketed in the EU/EFTA:

- In case of installation in machines, startup of the drive inverters (meaning the start of proper use) is prohibited until it is determined that the machine meets the requirements stipulated in the EC Directive 98/37/EC (machine directive); observe EN 60204.
- Startup (i.e. the start of designated use) is only permitted under observance of the EMC (2004/108/EC) directive.
- The frequency inverters comply with the requirements of the Low Voltage Directive 2006/95/EC. The harmonized standards of the EN 61800-5-1/DIN VDE T105 series in connection with EN 60439-1/VDE 0660 part 500 and EN 60146/VDE 0558 are applied to these frequency inverters.

Observe the technical data and the connection requirements specified on the nameplate and the operating instructions.

#### 2.4.1 Safety functions

Frequency inverters from SEW-EURODRIVE must not perform any safety functions unless the inverters are subordinate to other safety systems.

Use higher-level safety systems to ensure protection of equipment and personnel.





## 2.5 Transport

Immediately upon receipt, inspect the shipment for any damage that may have occurred during transportation.

**Never install or start up damaged products.** In the event of damage please submit a complaint to the transport company immediately.

## 2.6 Installation / assembly

The units must be installed and cooled according to the regulations and specifications in this documentation.

Protect the frequency inverters from excessive strain. Do not twist any components and do not modify the insulation spaces. Do not touch any electronic components or contacts.

Frequency inverters contain components that can easily be damaged by electrostatic energy and improper handling. Electric components must not be mechanically damaged or destroyed.

The unit meets all requirements for reliable isolation of power and electronics connections in accordance with UL508. All connected circuits must also satisfy the requirements for reliable isolation so as to guarantee reliable isolation.

Take suitable measures to ensure that the connected motor does not start up automatically when the inverter is switched on. To do this, connect binary inputs DI01 through DI03 to GND / 0V.

The following applications are prohibited unless the unit is explicitly designed for such use:

- Use in potentially explosive atmospheres.
- Use in environments with harmful substances:
  - Oils
  - Acids
  - Gases
  - Vapors
  - Dust
  - Radiated interference
  - Other harmful environments
- Use subject to mechanical vibration and shock loads in excess of the requirements in EN 50178
- Use in non-stationary applications which are subject to mechanical vibration and impact loads in excess of the requirements in EN 61800-5-1.
- If the inverter or its accessories perform safety functions which have to guarantee the protection of machinery and people



### **2.7 Electrical connection**

Observe the applicable national accident prevention guidelines when working on live frequency inverters (e.g. BGV A3 for Germany).

During installation, observe the specifications regarding cable cross sections, fusing and protective conductor connection.

Protective measures and protection devices must comply with the regulations in force (e.g. EN 60204 or EN 61800-5-1).

- Grounding the unit is a necessary protective measure.
- Overcurrent protection devices are a necessary protective measure.

### **2.8 Safe disconnection**

The MOVITRAC® LT units and their accessories meet all requirements for safe disconnection of power and electronic connections in accordance with EN 61800-5-1. All connected circuits must also satisfy the requirements for safe disconnection.

### **2.9 Startup / operation**

Systems with integrated frequency inverters must be equipped with additional monitoring and protection devices, as applicable, according to the relevant safety guidelines and regulations, such as legislation governing technical equipment, accident prevention regulations, etc.

Do not touch live components or power connections until 10 minutes after disconnecting the frequency inverters from the supply voltage because there may still be some charged capacitors. Observe the corresponding labels on the frequency inverter.

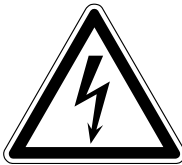

Keep all covers and doors closed during operation.

The fact that the status LED and other display elements are no longer illuminated does not indicate that the unit has been disconnected from the mains and no longer carries any voltage.

Mechanical blocking or safety functions inside the unit may result in the motor coming to a standstill. Eliminating the cause of the problem or performing a reset may result in the drive re-starting automatically. If, for safety reasons, this is not permitted for the driven machine, disconnect the unit from the supply system before correcting the error.



## 2.10 Operation and servicing

	<p><b>⚠ WARNING</b></p> <p><b>Dangerous voltages</b> are present in the <b>output terminals</b> and the <b>cables and motor terminals connected to them when the unit is switched on</b>.</p> <p>The unit is <b>not</b> necessarily <b>deenergized</b> when the <b>LEDs and the 7-segment display are off</b>. Dangerous voltages may also be present when the unit is inhibited and the motor at a standstill.</p> <p><b>High voltages</b> are also present in the terminals and within the drive for <b>up to 10 minutes</b> after the electrical supply has been disconnected.</p> <p>Severe or fatal injuries from electric shock.</p> <ul style="list-style-type: none"> <li>• Disconnect and isolate the MOVITRAC® LT from the electrical supply at least 10 minutes before commencing any work on it.</li> </ul>
	<p><b>⚠ WARNING</b></p> <p><b>Safety functions inside the unit</b> or a <b>mechanical blockage</b> may cause the <b>motor to stop</b>. The <b>removal of the source of the malfunction</b> or a <b>reset</b> can result in an <b>automatic restart of the drive</b>.</p> <p>Severe or fatal injuries.</p> <ul style="list-style-type: none"> <li>• <b>Disconnect the unit from the supply system</b> before correcting the fault.</li> </ul>

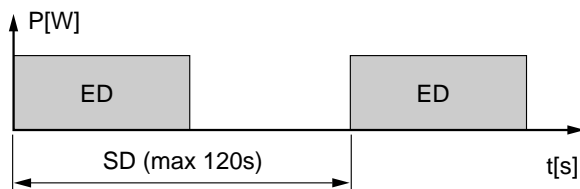
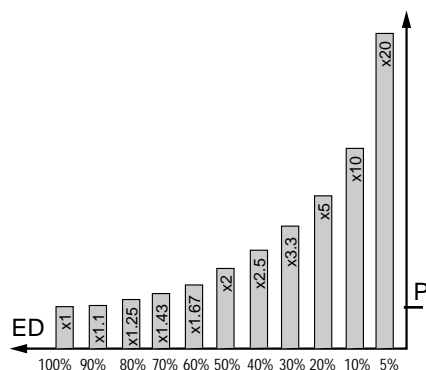


## 3 Braking Resistors

### 3.1 Flat design braking resistors

Braking resistor type	Protection rating IP20 <sup>1)</sup> BW LT 100 002	Protection rating IP55 <sup>1)</sup> BW LT 050 002 55
Part number	1820 8770	1821 8342
Resistance value	100 R	50 R
For MOVITRAC® LTE-B . . For MOVITRAC® LTP . .	Sizes 2 & 3	

1) Not UL approved



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- Functionality
  - MOVITRAC® LT software protects the BW LT braking resistors from overload, hence no external overload relays are required
  - Internal fusible element ensures fail safe operation
  - Designed to slide on to the side of the MOVITRAC® LTP heatsink or is mounted inside the MOVITRAC® LTE-B heatsink, creating a simple, integrated assembly
  - Space saving
  - Parallel arrangements for more demanding applications with MOVITRAC® LTP
- Supported unit types
  - MOVITRAC® LTE-B
  - MOVITRAC® LTP
- Key physical features
  - IP00
  - Wire wound
  - Metal clad housing

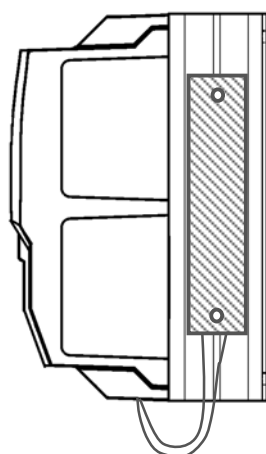
### 3.1.1 Technical Data

Resistor	Part number	Technical Data	Dimensions	
			[mm]	[inch]
BW LT 100 002	1820 8770	200 Watt continuous, 12 kW peak for 0.125 s	188 x 41 x 9	7.402 x 1.614 x 0.354
BW LT 050 002 55	1821 8342		330 x 80 x 12	12.99 x 3.150 x 0.472

### 3.1.2 Installation

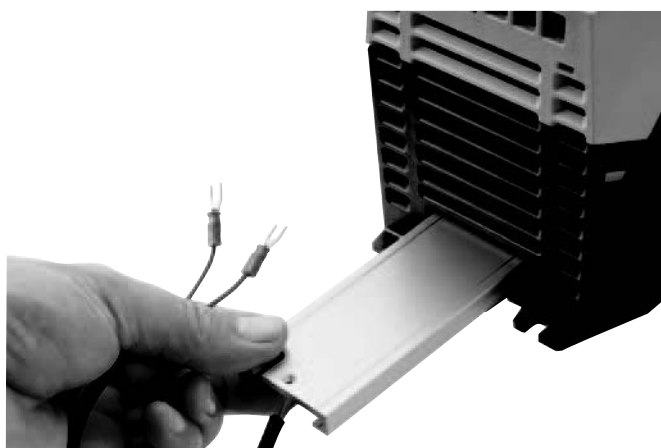
The braking resistor is designed to slide onto the side of the MOVITRAC® LTP heatsink (see below), or is mounted inside the MOVITRAC® LTE-B heatsink.

**BW LT 050 002 55**



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**BW LT 100 002**



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- Connect the braking resistor to the "+" and BR terminals on the MOVITRAC® LT. The orientation is not important.
- Ensure that the fixing screws and spring washers provided are fastened securely prior to operation.



#### TIP

For heavy braking applications a maximum of 2 resistors can be fitted, one on either side of the MOVITRAC® LTP.



## Braking Resistors

### Flat design braking resistors

#### 3.1.3 Easy startup

- For MOVITRAC® LTE-B drives:  
To enable the brake chopper set Parameter 34 to "1".
- For MOVITRAC® LTP drives:  
To enable the brake chopper set Parameter 2-23 to one of the following:
  - 1: Enable lo power
  - 2: Enable hi power
  - 3: Enable, external protection



#### TIP

The difference between high and low power is the software protection level, which prevents damage to the drive and resistor.

## 4 RFI Line Filters

Rear or side mounting filters for compliance with EMC standards for conducted emissions.

- Functionality
  - Easy to install and retrofit
  - Reduced electrical wiring time due to provision of filter-drive cables
  - High specification inductive components, resulting in fewer leakage breaker trips
  - Comply with EMC radiated emission standards (EN 61000)
- Supported unit types
  - MOVITRAC® LTE-B
  - MOVITRAC® LTP

### 4.1 EMC emissions

The MOVITRAC® LT EMC emission levels comply with the limit classifications defined in EN 61800-3 and EN 55014, allowing it to be used in both industrial and domestic (light and industrial) applications.

Type / Rating	Part Number	Category C1 (Class B)	Category C2 (Class A)	Category C3
230 V, 1-phase ratings	LTE-B xxxx 2B1-x-xx	No additional filter required. Use screened motor cables.		
	LTP-A xxxx 2B1-x-xx			
	LTE-B xxxx 201-x-xx	Use external filter type NF LT 2B1 0xx. Use screened motor cables.		
230 V / 400 V, 3-phase ratings	LTE-B xxxx 2A3-x-xx	Use external filter type NF LT 5B3 0xx.	No additional filter required.	
	LTE-B xxxx 5A3-x-xx	Use screened motor cables.		
	LTE-B xxxx 203-x-xx	Use external filter type NF LT 5B3 0xx.		
	LTE-B xxxx 203-x-xx	Use screened motor cables.		
	LTE-A xxxx 2A3-x-xx	No additional filter required.		
	LTE-A xxxx 5A3-x-xx	Use < 5 m screened motor cable	Use screened motor cables.	
	525 V / 575 V, 3-phase ratings	LTP-A xxxx 603-x-xx	External filter required. Use screened motor cables.	

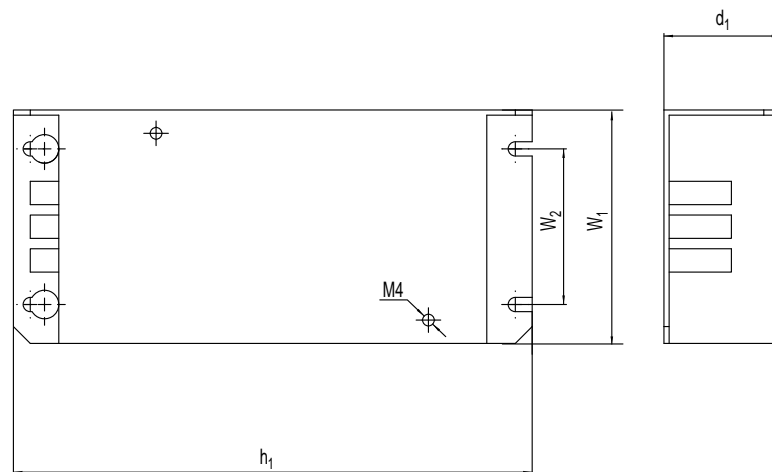


## 4.2 Technical data

Type		NF LT 2B1 010	NF LT 5B3 006	NF LT 2B1 016	NF LT 5B3 016	NF LT 5B3 030
Drive Size		1		2		3
Part No.		18201571	18201601	18201598	18201628	18201636
Supply voltage	[V]	220 – 240	220 – 480	220 – 240	220 – 480	
Rated voltage	[V]	275	480	275	480	
Phases		1	3	1	3	
Rated current (40 °C ambient temperature)	[A]	5		15		30
Overload capability		1.5 × output current for 3 minutes / hour 2.5 × output current for 30 seconds / hour				
Earth leakage	[mA]	< 1	5	< 1	11	
Dimensions (L × W × H)	[mm]	200 × 90 × 45	300 × 115 × 50	200 × 90 × 45	300 × 115 × 50	300 × 190 × 50
	[inch]	7.87 × 3.54 × 1.77	11.8 × 4.53 × 1.97	7.87 × 3.54 × 1.77	11.8 × 4.53 × 1.97	11.8 × 7.48 × 1.97
Weight	[kg]	0.8		1.5	1.55	1.9



### 4.3 Dimensions



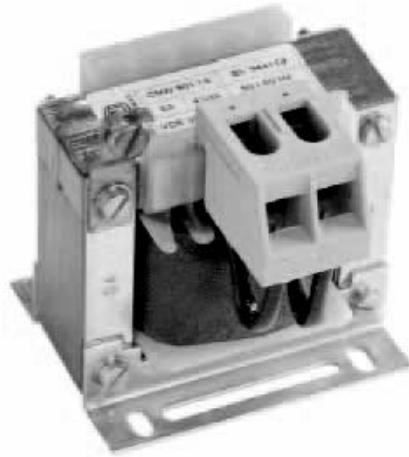
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Type		NF LT 2B1 010	NF LT 5B3 006	NF LT 2B1 016	NF LT 5B3 016	NF LT 5B3 030
Size		1		2		3
Dimensions						
$W_1$	[mm]	90		114		186.6
	[inch]	3.54		4.49		7.35
$W_2$	[mm]	60		70		146.6
	[inch]	2.36		2.76		5.77
$h_1$	[mm]	200		300		300
	[inch]	7.87		11.81		11.81
$d_1$	[mm]	46		51		51
	[inch]	1.81		2.01		2.01

**4.4 Easy startup**

- RFI line filters are designed to slide on to the back of the MOVITRAC® LTP heatsink, creating a simple integrated assembly. With MOVITRAC® LTE-B the filter is mounted next to the unit.
- Fixing holes for the combined assembly are the same as for the standalone drive; longer screws are provided.
- The electrical supply connects to the filter. Connection of the supply earth to the filter earth is essential, otherwise the filter will not work.
- The filter wire connects to the drive input and drive earth points according to the label on the wire.
- The filters contain capacitors that are connected between phase and earth; a leakage current will flow during normal operation. A good earth connection is therefore essential and must be connected before applying power to the filter.

## 5 Line Chokes



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Most types of drive products create supply harmonic distortion due to the configuration of the power input circuit. Line chokes reduce supply harmonic distortion and protect the MOVITRAC® LT against harmful supply disturbances.

Line chokes are also used to protect the power input circuits of the MOVITRAC® LT against voltage spikes which might originate from lightning strikes or other equipment, such as welders or DC drives, on the same supply.

MOVITRAC® LTP Sizes 4, 5 & 6 include 3-phase line chokes as part of the product basic design. This significantly improves the robustness of these products.

An external choke is required if 220 V or 400 V drives from 0.37 kW (0.5 HP) to 5.5 kW (7.5 HP) are installed under conditions where the quality of the supply cannot be guaranteed. Examples of these conditions are:

- Local generator
- Large loads on the same supply
- High  $dV / dt$  voltage fluctuations
- Outdoor pumping stations with exposed supply lines, which may be hit by lightning strikes
- Crane applications
- When supply is via bus bars

An external line choke is always required for MOVITRAC® LTP 575 V drives from 0.75 kW (1 HP) to 5.5 kW (7.5 HP).

All drives with 7.5 kW (10 HP) or greater have a built-in choke and therefore do not need external chokes fitted to ensure transient protection.

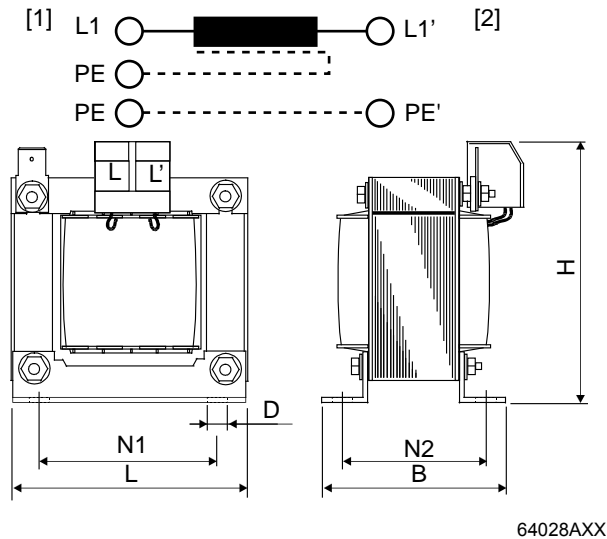


### 5.1 Technical data

Type	Part number	IP-rating	Size	Phase	Supply voltage [V]	Rated current [A]	Inductance / Limb [mH]
ND LT 010 290 21	18201644	IP00	1	1	220 – 240 V	10	2.9
ND LT 025 110 21	18201652		2			25	1.1
ND LT 006 490 53	18201660		1	3	380 – 480 V	6	4.8
ND LT 010 290 53	18201679		2			10	2.9
ND LT 036 081 53	18201687		3			36	0.81
ND LT 016 183 21 55	18217680	IP55	1	1	220 – 240 V	16	1.8
ND LT 025 117 21 55	18217699		2			25	1.1
ND LT 066 613 63 55	18217702		1	3	600 V	6	6.1
ND LT 010 386 63 55	18217710		2			10	3.9
ND LT 020 183 63 55	18217729		3			20	1.8

## 5.2 Dimensions

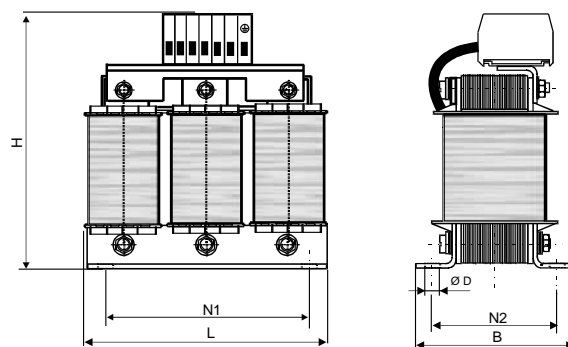
### 1-phase circuit



- [1] Supply  
[2] Drive

Type	L		B		H		N1		N2		Ø D		Weight	
	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[kg]	[lb]
ND LT 010 290 21	78	3.07	78	3.07	80	3.15	56	2.20	49	1.93	4.8 × 9	0.19 × 0.35	1.1	2.43
ND LT 025 110 21	85	3.35	95	3.74	95	3.74	64	2.52	59	2.32	4.8 × 9	0.19 × 0.35	1.8	3.97
ND LT 016 183 21 55	82	3.23	70	2.76	70	2.76	70	2.76	58	2.28	6	0.24	1.1	2.43
ND LT 025 117 21 55	90	3.54	84	3.31	75	2.95	84	3.31	72	2.83	6	0.24	1.8	3.97

### 3-phase circuit



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- [1] Supply  
[2] Drive

Type	L		B		H		N1		N2		Ø D		Weight	
	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[kg]	[lb]
ND LT 006 480 53	95	3.74	56	2.20	107	4.21	56	2.20	43	1.69	4.8 × 9	0.19 × 0.35	1.3	2.87
ND LT 010 290 53	125	4.92	71	2.80	127	5.00	100	3.94	55	2.17	4.8 × 9	0.19 × 0.35	2.5	5.51
ND LT 036 081 53	155	6.10	77	3.03	185	7.28	130	5.12	72	2.83	8 × 12	0.32 × 0.47	7.2	15.87
ND LT 066 613 63 55	140	5.51	77	3.03	110	4.33	100	3.94	60	2.36	5.5 × 7	0.22 × 0.28	2.8	6.17
ND LT 010 386 63 55	175	6.89	99	3.90	137	5.39	130	5.12	79	3.11	5.5 × 12	0.22 × 0.47	3.5	7.72
ND LT 020 183 63 55	175	6.89	114	4.49	137	5.39	130	5.12	94	3.70	5.5 × 12	0.22 × 0.47	7	15.43

## 6 Output Chokes



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MOVITRAC® LT units, like the majority of other inverter drives, have unfiltered outputs. In the majority of applications this will give satisfactory performance, however, in a small number of applications output filtering is strongly recommended to improve system functionality, reliability and longevity. These applications include:

- Long motor cables, up to 300 m (the rated cable length can be doubled if an output choke is used)
- High capacitance motor cables (i.e. typical "pyro" wire, used for fire protection)
- Multiple motors connected in parallel
- Motors without inverter grade insulation (typically older motors)

A range of high quality output chokes are available for MOVITRAC® LT with the following key features:

- Limits output voltage gradient, typically  $<200 \text{ V}/\mu\text{s}$
- Limits transient over voltages at the motor terminals, typically  $<1000 \text{ V}$
- Suppression of mains conducted interference in lower frequency ranges
- Compensation of capacitive load currents
- Reduction of RFI emissions from the motor cable
- Reduction of motor losses and audible noise caused by ripple

Supported unit types:

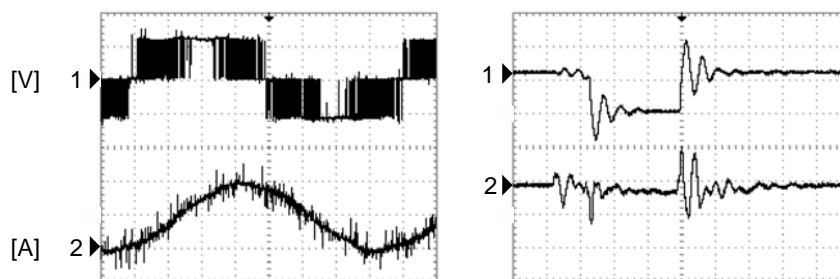
- MOVITRAC® LTE-B (Sizes 1, 2 & 3)
- MOVITRAC® LTP (Sizes 1 - 6)

## 6.1 Technical Data

Unit	Type	Part number	IP-rating	Size	Phase	Rated voltage [V]	Rated current [A]	Inductance / Limb [mH]
LTE / LTP	HD LT 008 200 53	18201695	IP00	1	3	480	8	2
	HD LT 012 130 53	18201709		2		480	12	1.3
	HD LT 030 050 53	18201717		3		480	18	0.5
LTP	HD LT 075 022 53	18201725		4		480	75	0.22
	HD LT 180 009 53	18201733		5		480	180	0.09
	HD LT 250 007 53	18201741		6		480	250	0.065
LTE / LTP	HD LT 008 200 63 55	18216757	IP55	1		480 – 600	8	2
	HD LT 012 120 63 55	18216765		2		480 – 600	12	1.2
	HD LT 018 090 63 55	18216773		3		480 – 600	18	0.9

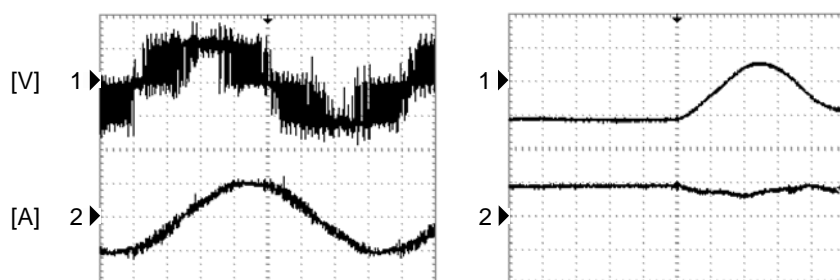
### 6.1.1 Comparison of output voltage and current characteristics

#### Without choke



64148AXX

#### With choke



64146AXX

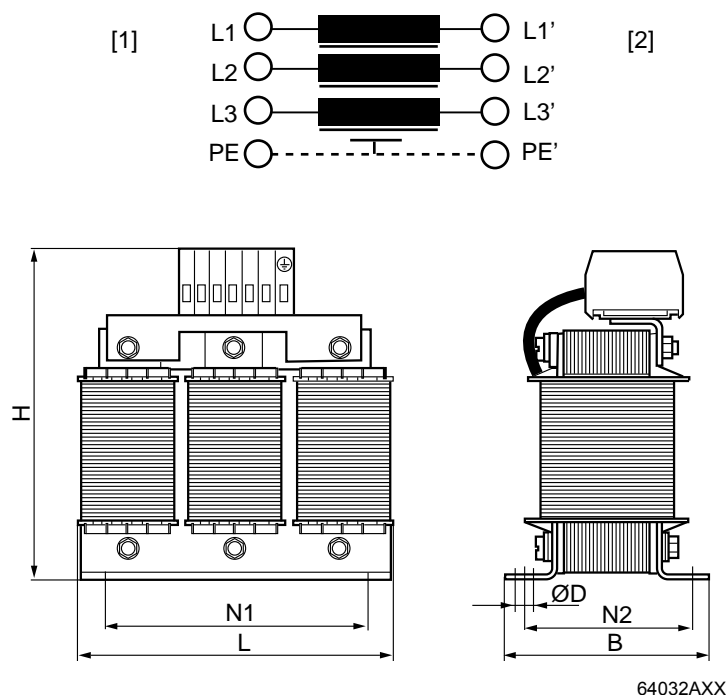


#### TIP

With a filter fitted the switching pulse rises slower and to a lower amplitude.



## 6.2 Dimensions



Type	L		B		H		N1		N2		Ø D		Weight	
	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[kg]	[lb]
HD LT 008 200 53	100	3.94	90	3.54	75	2.95	60	2.36	48	1.89	4	0.16	1.5	3.31
HD LT 012 130 53	125	4.92	115	4.53	85	3.35	100	3.94	55	2.17	5	0.20	3	6.61
HD LT 030 050 53	155	6.10	160	6.30	105	4.13	130	5.12	57	2.24	8	0.32	4.5	9.92
HD LT 075 022 53	190	7.48	255	10.04	125	4.92	170	6.69	68	2.68	8	0.32	10	22.05
HD LT 180 009 53	240	9.45	310	12.20	155	6.10	190	7.48	106	4.17	11	0.43	22	48.50
HD LT 250 007 53	300	11.8	390	15.35	210	8.27	240	9.45	121	4.76	11	0.43	40	88.18
HD LT 008 200 63 55	115	4.53	74	2.91	85	3.35	80	3.15	60	2.36	5.5 × 7	0.22 × 0.28	1.7	3.75
HD LT 012 120 63 55	140	5.51	87	3.43	110	4.33	100	3.94	70	2.76	5.5 × 7	0.22 × 0.28	3.2	7.05
HD LT 018 090 63 55	140	5.51	87	3.43	110	4.33	100	3.94	70	2.76	5.5 × 7	0.22 × 0.28	3.2	7.05



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